The Panic of 1819 alerted many to the need for more effective transportation of goods. Most rivers west of the Appalachians ran north to south, so they could not connect western farmers with the eastern markets where their goods were sold. The National Road was the primary connection between east and west, and it advanced further west each year. In addition, between 1815 and 1825 seven northern states built toll roads, or turnpikes. However, this did not solve the problem of transportation. Horse-drawn wagons had very limited capacity and roads were very expensive to maintain. Thus, interest turned toward the concept of water transportation.

In 1807, Robert Fulton and Robert Livingston introduced the first steamboat, known as the *Clermont,* on the Hudson River. Steamboats quickly caught on and became the preferred mode of water transportation. Between 1817 and 1820 the number of steamboats in America jumped from 17 to 69, and by 1855, the number had reached 727. Before the advent of the steamboat, flatboats, sometimes little more than rafts, carried goods down the Mississippi River. There, the boats were broken up and sold as firewood because they could not make the trip back upstream. The return voyage was then made on foot or horseback. Keelboats, like flatboats except in that they had a rudder, could make the return journey upstream, but progress was extremely slow. Steamboats moved about four times as fast as keelboats upstream. The speed and versatility of the steamboat, augmented by a number of important functional improvements made over the years, established the steamboat an indispensable method of trade for all seasons.

As steamboats gained popularity, enthusiasm grew for the building of canals. In 1816, the US had only 100 miles of canals. However, the invention of the steamboat and the resources of the west convinced many that canals were a necessary connection between the Mississippi-Ohio waterways with the Great Lakes, and thereby the East. The first major canal project, the Erie Canal, spanned 363 miles and connected Buffalo and Albany, New York. Through the Erie Canal, New York City was linked, by the Hudson River in the East, and the Great Lakes in the West, all the way to Ohio. The growing canal system linked the major trading and manufacturing centers of the nation. Shipping costs dropped dramatically. Average freight costs from Buffalo to New York City fell from 19 cents per ton per mile in 1817 to 2 to 3 cents during the 1830s.

As the canal boom slowed in the late 1830s, the railroad boom kicked into gear. By 1840, about 3,000 miles of track had been lain in America and investment in railroads had outstripped that in canals. The Baltimore and Ohio Railroad, chartered in 1828, successfully competed with the Erie Canal for business. Massachusetts, unable to connect to the Erie Canal due to obstructing mountains, chartered the Boston and Worcester Railroad in 1831 and the Western Railroad from Worcester to Albany in 1833. Railroads were faster, cheaper, and had greater range than canals, but still grew only gradually at first.

The transportation revolution produced the rapid growth of towns and cities. In 1820, 6.1 percent of Americans lived in places with populations of greater than 2,500 people, and only New York City and Philadelphia had more than 100,000 people. By 1860, however, nearly 20 percent of the population lived in places of 2,500 or more, and New York City's population had climbed from 124,000 to 800,000. The West experienced dramatic changes as well. Before 1830, all of the major cities in the West were on main rivers. However, the canal system heightened the importance of lake cities such as Buffalo, Cleveland, Detroit, and Chicago. Between 1830 and 1840, the portion of westerners living along rivers dropped from 75 to 20 percent.

**Commentary**

Steamboats quickly became a symbol of the West. As such, westerners continuously sought to improve and decorate the boats. In competition for passengers, they began to offer luxurious cabins and built ornate lounges on board. The elegance of these steamboats served as a reassurance to westerners that they were not the primitive backwoods hicks painted by the eastern press. However, most steamboat passengers did not have access to this elegance. The onboard saloons were open only to those who had purchased expensive cabin passage. Passengers who could afford only deck passage slept in dirty, crowded conditions on a cotton bale if they could find one, on the floor if they could not.

All passengers experienced the dangers of steamboat travel. Fires were common because steamboats used huge furnaces and often carried flammable cargo, such as oil or hay. Collisions also occurred frequently. In one 1837 collision, several hundred Creek Indians were killed on the Mississippi while en route to reservations in the West. Debris under the water's surface often cracked the hulls of fast-moving ships as well. Further, because little was known about the reaction of metals under the stress of steam travel, boiler explosions destroyed many a steamer and its passengers. One company carried passengers on a barge behind the steamboat expressly to avoid this common source of injury and death.

The canal system revolutionized American trade. Once thought of by Thomas Jefferson as "little short of madness," by 1825, when the Erie Canal was completed, canals were hailed as the savior of American commerce. In a period of frequent insecurity, the Erie Canal was seen as a symbol of American ingenuity and peaceful progress. The grid of canals spanning the North transformed the methods of commerce and manufacturing, and dramatically changed the fortunes of some towns. In 1836, 365,000 bushels of western wheat entered the milling town of Rochester, New York and left as 369,000 barrels of flour bound for eastern markets. All of this was accomplished by shipment along the Erie Canal. The canal transformed Rochester from a small village of a few hundred in 1817 to a thriving town of 9,000 by 1830.

Cities such as Baltimore and Boston, which lacked connections to the West through waterways, saw the railroad as their opportunity to participate in western trade. The Western Railroad and the Baltimore and Ohio Railroad proved very successful for Boston and Baltimore, respectively. However, railroads spread slowly despite their advantages over canals. Until 1850, most railroads connected cities in the East rather than East and West, and most carried more passengers than freight. The East was not connected to the Great Lakes by rail until 1850. Many factors contributed to the slow growth of the railroads. Unlike canals that had been built by state governments, railroads were often built by independent contractors. In order to minimize the cost of their initial investments, these contractors often used cost-cutting methods such as using wooden rails covered by iron bars. As a result, American railroads were in constant need of repair, factoring into their slow growth. In contrast, canals, once built, needed little maintenance. Also, large, bulky commodities were more cheaply shipped by canal, keeping canals in demand long after railroads were built.

The rise of cities had the effect of drawing increasing numbers into the already settled areas of the west, since these settlers knew that jobs and shelter waited for them there. Canals and railroads not only carried cargo, but also people, into the west. The growing population of cities contributed to the rise of manufacturing and industrialization, most notably in the North. Furthermore, the growth of cities created an entirely new category of political issues revolving around life in the cities.